



Aerial view of the Tai Po drinking water plant in Hong Kong.

Biological removal of ammonia and manganese in Hong Kong

To meet the forecasted increases in demand for drinking water, the new Tai Po Water Treatment Works has been built in Hong Kong. The plant has a production capacity of 1200 ML/day.

The water treatment works takes water from the river Dongjiang in the Guangdong Province north of Hong Kong. The raw water has an average turbidity level of around 11 NTU and contents, among other things, ammonia and manganese. Water temperatures range from 12 to 34°C.

During planning of the waterworks use of primary aerated biological filters (PABF) was selected for removal of ammonia and manganese. This solution strongly reduced the chlorine demand for the plant compared to the alternative execution with break point chlorination.

Pilot tests where different media were compared showed that the expanded clay filter media Filtralite® Pure was the best solution for the PABFs. The test column containing Filtralite® Pure HC (High density, Crushed) 2.5-5 mm had a stable ammonia removal of 80-90% and a manganese removal of 75%. Turbidity reduction through the biofilter was around 65%.

“ While designing the waterworks, use of primary aerated biological filters (PABF) with Filtralite® filter media was selected for removal of ammonia and manganese. This solution strongly reduced the chlorine demand for the plant compared to the alternative execution with break point chlorination. “

THE FACTS:

- Average turbidity : 11 NTU
- Raw water temperature : 12-34°C
- Turbidity removal : 65 %
- Ammonia removal : 80-90 %
- Manganese removal : 75 %

Leca Norge AS delivered 3000 m³ Filtralite® Pure HC 2.5-5 mm to the total 12 PABFs at the treatment works. The plant was taken into operation in April 2003 and operating data shows that the PABFs work very well. Both ammonia and manganese is removed to levels below the specifications.